OPTIMZED FIXED-POINT MATHEMATICAL LIBRARY AND GRAPHICS FUNCTIONS FOR A SOFTWARE-IMPLEMENTED GRAPHICS RENDERING SYSTEM AND METHOD USING A NORMALIZED HOMOGENOUS COORDINATE SYSTEM

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ABSTRACT OF THE DISCLOSURE

10   A software-implemented graphics rendering system and method designed and optimized for embedded devices (such as mobile computing devices) using fixed-point operations including a variable-length fixed point representation for numbers and a normalized homogenous coordinates system for vector operations. The graphics rendering system and method includes a fixed-point

15   mathematics library and graphics functions that includes optimized basic functions such as addition, subtraction, multiplication, division, all vertex operations, matrix operations, transform functions and lighting functions, and graphics functions. The mathematical library and graphics functions are modified and optimized by using a variable-length fixed-point representation and a

20   normalized homogenous coordinate system (NHCS) for vector operations.